

June 30, 2011

Bob Lewis
Environmental, Safety and DOT Compliance Manager
Genuine Parts Company
2999 Circle 75 Parkway
Atlanta, GA 30339

Re: Allison Transmission Submittal
West Vermont Street Contamination Site
Speedway, Indiana

Dear Bob:

ENVIRON International Corporation (ENVIRON) has completed a review of information provided by Allison Transmission Inc. (Allison) during the meeting held June 16th 2011 with the United States Environmental Protection Agency (EPA), the Genuine Parts Company, and Aimco Michigan Meadows Holdings, LLC regarding the West Vermont Street Contamination Site (Residential Site). Information presented during the meeting included four figures, two prepared by The Payne Firm, Inc (Payne) on behalf of Allison and two additional figures prepared by Arcadis US, Inc. (Arcadis) on behalf of General Motors LLC. Copies of the Payne and Arcadis figures are provided in Attachment A. The inference of the information presented by Allison is that the Allison Transmission Plant site located at 4700 West 10th Street is not the source of the VC detected in the water supply wells of the Residential Site. Available data do not substantiate this inference as discussed below. Data gaps remain that need to be addressed to confirm the source of the VC in the Residential Site water supply wells.

Payne prepared two figures both numbered Figure 1. The first Figure 1 is titled Overlay of Figures 15B & 15C-VC Isocontours-Intermediate Water Bearing Zone-West Vermont Street Contamination-Speedway, Marion County, Indiana. This figure is meant to show the sets of VC plumes illustrated in Figures 15B and 15C from the March 27, 2011 Technical Memorandum-Analytical and Hydrogeological Evaluation-West Vermont Street Contamination Site-Speedway, Marion County, Indiana (Technical Memorandum) prepared by Weston Solutions, Inc (Weston) for the EPA. A second figure prepared by Payne is titled VC Isocontours- Intermediate Water Bearing Zone-West Vermont Street Contamination-Speedway, Marion County, Indiana. This figure presents an interpretation of VC occurrence in groundwater of the Intermediate Water Bearing Zone (IWBZ) based on an inferred combination of Figures 15B and 15C of the Technical Memorandum. This Figure 1 presents an unlikely interpretation of VC occurrence in groundwater based on an implausible groundwater flow direction in the area of the Residential Site and an oversimplification of the hydrostratigraphy in this area. A minimal presentation of VC occurrence data from within and south of the Allison site also biases the interpreted combined VC plume east and west of Holt Road. The two figures prepared by Arcadis provide data obtained during a sampling event conducted north of the Residential Site in June 2011 including Drawing 1-June 2011 Monitoring Well Locations and Drawing-6 Cross Section VT-2-VT-2'. Both figures are marked as DRAFT-For Discussion Purposes Only. Data collected by

Arcadis provided limited additional information to support Payne's interpretation of VC occurrence in groundwater in the IWBZ.

Groundwater Flow Direction

By combining Weston's Figure 15B and 15C, Payne drafted an improbable shaped VC plume that would require opposing groundwater flow directions to be present within the plume. Figure 1 illustrates a northwest-southeast trending VC plume east of Holt Road. This orientation is consistent with the groundwater flow direction observed in this area as discussed below. Payne inferred an east-west oriented segment of the plume to exist that extends across Holt Road to the west into the Residential Site. For this inferred east-west oriented segment to exist, an east to west groundwater flow direction would be required. The implied east to west groundwater flow direction is inconsistent with published and observed groundwater flow directions for the area. The east to west groundwater flow direction is also inconsistent with Weston's interpreted southerly groundwater flow direction for the IWBZ in the Residential Site area (Figure 10b).

Regional hydrogeologic studies indicate a general south-southeasterly flow in the shallow aquifer in the vicinity of Holt Road and West Michigan Street with water levels showing a strong relationship with surface water drainage and local surface topography (Brown and Laudick, 2003, Fleming et al., 1993; Meyer et al., 1975). Both Big Eagle Creek and Little Eagle Creek generally flow to the southeast in the area toward their confluence approximately one mile southeast of the Residential Site. Historical groundwater elevation data (1995-2011) collected from the shallow aquifer (0-50 ft bgs) for monitoring wells east of Holt Road has consistently exhibited south-southeasterly flow direction indicative of both the regional flow and influence of Little Eagle Creek (ENVIRON 2011a, KERAMIDA 2004). A more southerly flow direction has been shown near Holt Road where there is less influence from Little Eagle Creek. To the west in the vicinity of the Allison site, regional groundwater flow in the shallow saturated zone is generally south towards Big Eagle Creek (Arcadis et. al. 2009, Fleming et al., 1993). The southerly flow direction in this area is exemplified by the presence of light non-aqueous phase liquid (LNAPL) in two monitoring wells (MW-526-S2A and MW-0622-S2A) located in the residential area south of the Allison plant near the intersection of Cossell Road and Arthur Avenue (Fig 4.43.3 Arcadis et al., 2009). These wells are located east adjacent to AOI-40 which is a diesel fuel release undergoing active remediation. The diesel fuel release reportedly originated from a transfer line between the south fuel farm (AOI 26) and the Engineering Test Cells (AOI 13). The release was identified in 1972 when a diesel fuel was observed seeping into Big Eagle Creek (Arcadis et. al. 2009). AOI 26 and AOI 13 are located north and northwest of the two monitoring wells in the residential area containing LNAPL.

There is a large groundwater elevation data gap in area south of the Allison facility west of Holt Road. Potentiometric surface maps (Fig 10a and 10b) prepared by Weston for the Technical Memorandum generally have inferred contour lines in this area. As discussed above, groundwater movement south of the Allison site is expected to be consistent with the regional studies and observed flow directions to the south-southeast.

The Michigan Plaza (Plaza) site located at 3811 West Michigan Street has also been identified as a potential source of VC and PCE to the Residential Site (Weston, 2011). As discussed in the Push Probe Investigation Near MW-170D report (ENVIRON, 2011), the three identified PCE source areas related to the Plaza site have not been delineated. An additional potential PCE source area located on the western side of the Plaza building has not yet been investigated. IDEM requested further investigation of all four of these areas in a correspondence dated June 22, 2011 (IDEM, 2011). In more than one correspondence, IDEM has expressed a concern that DNAPL may be present at the Plaza site. In the June 22, 2011 correspondence, IDEM stated that "Given that the lower portion of the aquifer has not been adequately monitored in the source areas, and the depth to the basal till has not been confirmed, it is possible that NAPL is present at the till surface. It could be moving at some angle to the groundwater flow." Considering the Plaza PCE source areas have not been delineated and that DNAPL may be present and move at some angle to the groundwater flow, the Plaza remains a potential source of VC and PCE to the Residential Site.

Hydrostratigraphy

Payne based their interpretation of VC occurrence in the IWBZ on an oversimplified hydrogeologic conceptual model developed by Weston. Weston defines three water bearing zones in Section 3.2 of the Technical Memorandum. These include an upper water bearing zone (UWBZ) that extends to a depth of approximately 30 feet below ground surface (bgs) underlain by a discontinuous clay till, an IWBZ that is present subjacent to the till from approximately 35 feet to 75 feet bgs, and a lower water bearing zone (LWBZ) that extends from approximately 90 feet bgs to greater than 107 feet bgs. Geologic cross-sections provided in the RCRA Facility Investigation Report (Arcadis, et. al., 2009) prepared for the Allison site indicate the presence of four sand units present in the area with sand unit S2 located at 17.5-46 ft bgs as the likely shallow aquifer unit. The S2 unit is subdivided into S2A and S2B units based on the intermittent presence of a clay unit. Although the S2A unit is generally consistent with Weston's UWBZ, the S2B unit occurs at a depth that is more consistent with the IWBZ as defined by Weston. The S2 sand unit is geologically complex west of Holt Road and may actually consist of several isolated lenses. A clay layer separates the upper S2 unit from the lower water bearing sand unit S3 found at approximately 48-61 ft bgs. The depth of the S3 unit is generally consistent with Weston's IWBZ.

The hydrostratigraphy east of Holt Road is much less complex. Here the intervening clay till is generally absent and an unconfined sand unit is generally present to depths ranging up to approximately 50 feet bgs (KERAMIDA, 2004). This unconfined sand unit is underlain by a silty loam till. In general, the unconfined sand unit is consistent with the shallow aquifer unit S2 at the Allison site.

At least two of the five water supply wells provided in Figure 1 have completion depths of less than 40 feet bgs, and are likely in Weston's UWBZ. Other water supply wells, including the one (4012 Cossell) exhibiting the greatest VC concentration, are completed at a greater depth more consistent with Weston's IWBZ and Arcadis's S3 unit. The monitoring wells located east of Holt Road including MW-170D have completion depths more consistent with Weston's UWBZ, not

the IWBZ. The degree of hydraulic connection between the UWBZ and IWBZ has not been determined in this area. A sound understanding of the area hydrogeology and direction of groundwater flow is crucial for the determination of the source of VC in groundwater to the Residential Site.

VC Occurrence

Payne's Figure 1 is based on very limited data west of Holt Road. The biased presentation of data appears to all but rule out the potential for the Allison site to be impacting the Residential Site. Allison is a large multi-plant facility located north-northwest of the Residential Site. Thirteen¹ Areas of Interest (AOI) impacted by chlorinated solvents have been identified (Arcadis, et. al., 2009). These AOI are illustrated on Figure 3 of the Technical Memorandum. Based on the size and long history of heavy industry at the Allison site, other unidentified sources of chlorinated solvent impacts may also exist.

Data presented on Figure 1 for the Allison site only includes a few S3 zone wells associated with AOI-51. VC has been detected in groundwater in areas other than AOI-51. One notable example is AOI-26 where 1,800 micrograms per liter (ug/L) VC was detected in MW-15-S2 (Arcadis, et. al., 2009). VC was also detected in the deeper S3 zone (MW-2-S3) in this area and does not appear to have been delineated. As previously discussed, the hydrostratigraphy underlying the Allison site is significantly more complex than that in the vicinity of the Residential Site to the south and east of Holt Road. In light of the complex hydrostratigraphy underlying the Allison site it is difficult to determine if the impacts of the chlorinated solvent releases from the 13 identified chlorinated solvent related AOI have been fully delineated. It is clearly evident from the north-south oriented cross sections E-E', F-F', G-G', H-H' from the 2009 RCRA Facility Report that there is significant variation in sand lens depth, width, and termination in the S2 unit. This is particularly evident near AOI 51 where nearly 8,000 gallons of PCE were reportedly spilled in 1988 (Arcadis, et. al., 2009). Due to unit S2's tortuous nature and interpreted presence of discontinuous sand lenses, it's difficult to determine if the monitoring wells used to delineate the PCE plume related to AOI 51 are monitoring similar sand lenses and are actually delineating VOC occurrence. In addition limited investigation has occurred in the intermediate sand unit S3 where PCE concentrations have exceeded 1 percent of its solubility (MW-S3-0501). MW-S3-0501, located south of AOI 51, contained a PCE concentration of 2030 ug/L. PCE impacts have not been delineated east and southeast of MW-S3-0501 in the S3 unit (depth of 54 ft bgs) or vertically. Large data gaps between soil borings and monitoring wells screened in this interval (S3 unit) are present throughout the Allison site. This is evident in Cross section F-F' (Weston Figure 9-D-D') where a large data gap is present between the up gradient chlorinated solvent release site AOI 42 and the down gradient AOI 51. The sand lens present under AOI 42 at a depth of approximately 50 feet bgs was interpreted by Arcadis as not being connected with the lens at the same depth under AOI-51.

¹ Note that Figure 3 of the Technical Memorandum identifies 13 AOI impacted by chlorinated solvents whereas the text of Section 2 of this document discusses 19 locations.

No monitoring well data were used in the generation of Figure 1 from south of the Allison site. Large data gaps exist regarding the hydrostratigraphy, groundwater flow direction, and VOC occurrence in groundwater off-site to south, particularly at depths greater than approximately 40 feet bgs (Weston's IWBZ). Two of the impacted residential water supply wells are reportedly screened in the S3 unit (4018 Vermont at 75', 4012 Cossell at 62'). Clearly a better understanding of the hydrostratigraphy, groundwater flow, and contaminant occurrence in both the S2 and S3 units is necessary within and downgradient from the Allison site to determine their impact on the water supply wells of the Residential Site. Information was provided by Allison at the June 16th meeting that was prepared by Arcadis on behalf of General Motors LLC indicating that additional sampling was conducted south of the Allison Transmission facility in June 2011. The information included two figures, one illustrating new monitoring well locations and related groundwater analytical results and a second one showing an east-west oriented cross section along Michigan Street. No other information regarding the sampling event such as sampling methodologies, soil boring logs/well construction records, liquid level elevations, or laboratory analytical reports were included with the submittal. Based on a review of Drawing 1 (well location map), five monitoring wells were installed and 13 existing and new monitoring wells were sampled for VOC. An additional well, MW-0526-S2A, was to be also to be sampled but contained LNAPL. One of the new monitoring wells, MW-1105-S3/S4, is located in the southeast corner of the Allison property near existing well SB-64-1001. This well was screened from 70-75 feet bgs. The four remaining wells were installed along Michigan Street. One of these monitoring wells, MW-1003-S3, was screened in the S3 unit from 50-55 feet bgs. The remaining three wells were screened at depths ranging from 85 to 103 feet bgs. These well depths correlate better with Arcadis's S4 unit and Westons LWBZ. Based on Drawing 1, it appears that the deep well (MW-1101-S4) located closest to AOI-51 and other identified chlorinated solvent AOI was not sampled. The new data collected by Arcadis only provides limited additional information south of the Allison facility. Only one of the new monitoring wells is completed in the S3 unit at a depth similar to the most impacted water supply well (4012 Cossell). The remaining wells appear to be completed in a lower water bearing unit. No groundwater elevation data or potentiometric surface maps were included with the Arcadis submittal; therefore the direction of groundwater flow in this area could not be confirmed.

Summary

Information provided by Allison during the June 16th meeting is insufficient to rule the Allison site out as a potential source of VC to the water supply wells of the Residential Site. Data gaps regarding groundwater flow and VC occurrence in groundwater remain within and south of the Allison site.

Payne drafted an inferred map of VC occurrence in the IWBZ that is unlikely based on an implausible east to west groundwater flow direction in the Residential Site area and an oversimplified hydrostratigraphy. Regional and site-specific studies show that groundwater generally flows to the south-southeast. The impacted water supply wells are likely present in both the UWBZ and IWBZ. The most impacted water supply well (4012 Cossell) is reportedly located in the IWBZ where large data gaps exist regarding groundwater flow and VC occurrence

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Genuine Parts Company

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in groundwater. Only limited VC data is presented in Figure 1 from west of Holt Road. This lack of data further biases Payne's interpretation of VC occurrence in the IWBZ.

Should you have any questions regarding this correspondence, please contact me at your convenience.

Very truly yours,

ENVIRON International Corporation



Andrew A. Gremos, LPG, CHMM
Principal Consultant

Enclosure

REFERENCES

Arcadis US, Inc (Arcadis), ENVIRON International Corporation, Inc (ENVIRON), and Exponent, February 20, 2009, RCRA Facility Investigation Report, Allison Transmission site

Brown, S.E., Laudick, A.J. [editors], 2003, Hydrogeologic framework of Marion County, Indiana: a digital atlas illustrating hydrogeologic terrain and sequence: Indiana Geological Survey Open-File Study 00-14, 15 pl.

ENVIRON International, Inc (ENVIRON), March 2011a, Remedial Progress Report, Genuine Parts site

ENVIRON International, Inc (ENVIRON), June 2, 2011b, Push Probe Investigation Near MW-170D

Fleming, A. H., Brown, S.E. and Ferguson, V.R., 1993, The Hydrogeologic Framework of Marion County, Indiana An Atlas Illustrating Hydrogeologic Terrain and Sequence, Indiana Geological Survey Open File Report 93-5

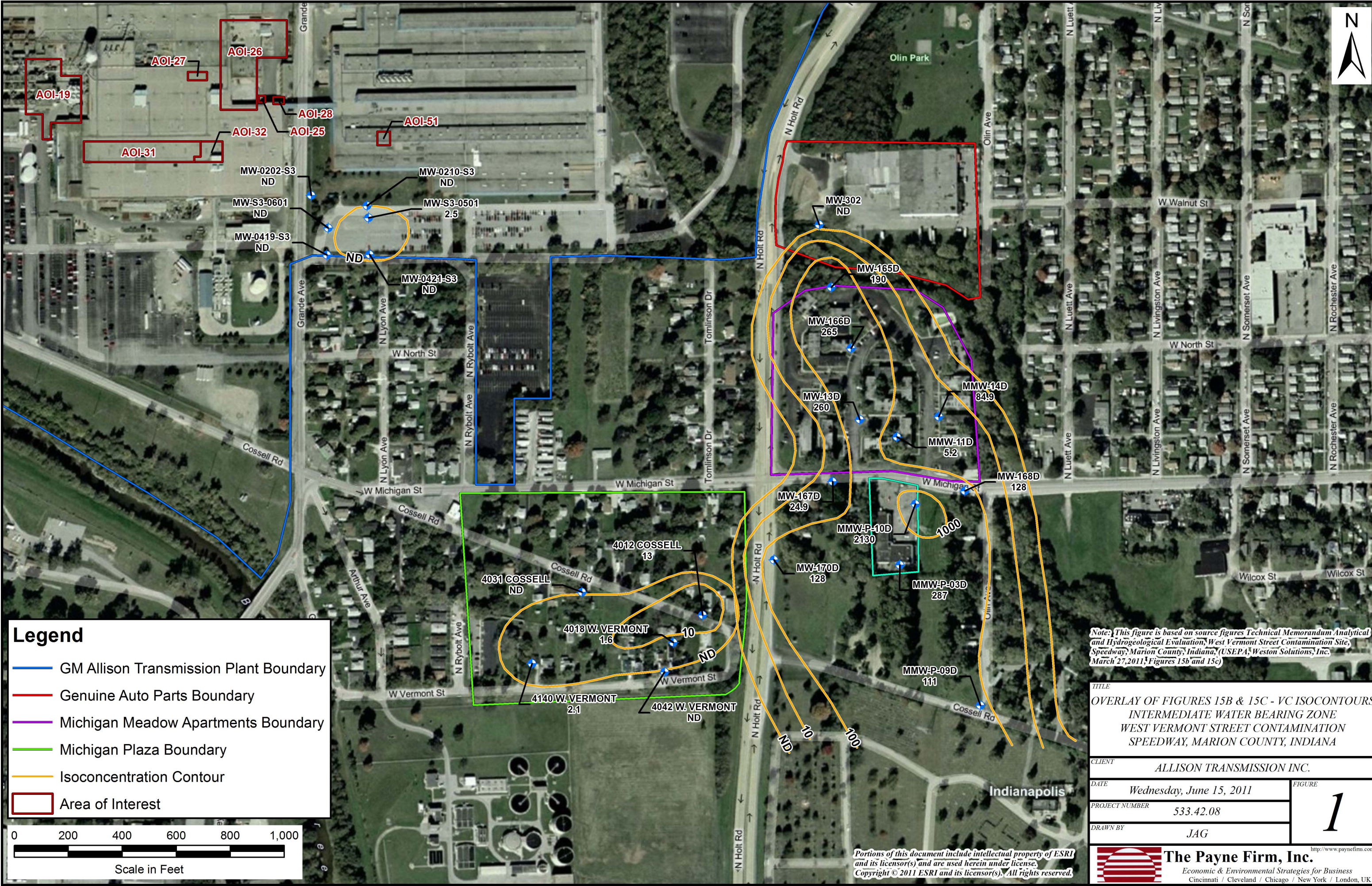
Indiana Department of Environmental Management (IDEM), June 22, 2011, Request for Revised Remediation Work Plan Approval review and Technical Response to General Notice of Potential Liability review, Michigan Plaza, 3801-3823 West Michigan Street, Indianapolis, Indiana, VRP #6061202

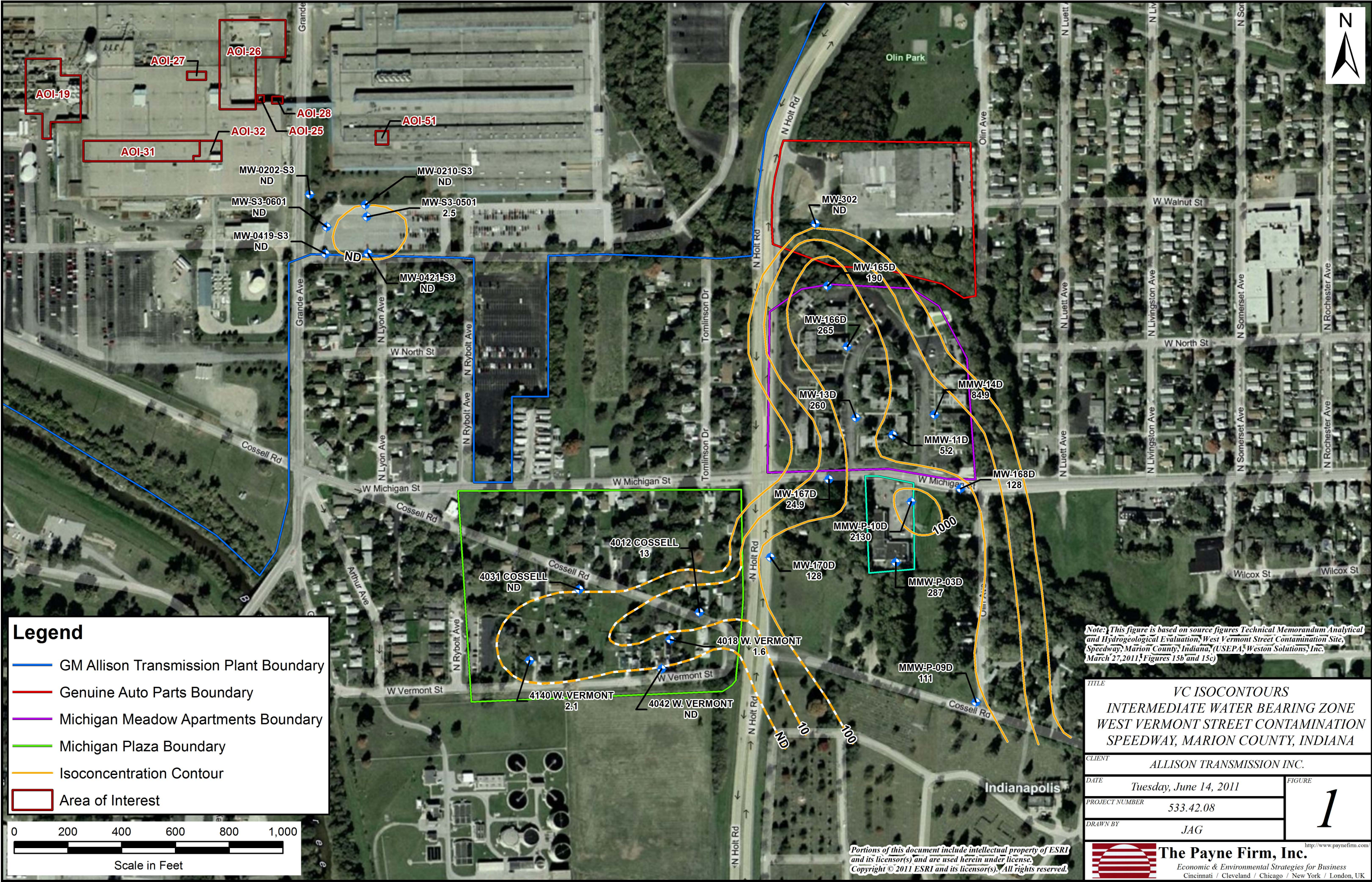
KERAMIDA Environmental, Inc (KERAMIDA), August 16, 2004, Final Remediation Work Plan, Former General Motors Corporation Allison Gas Turbine Division Plant 10, Genuine Parts Company site

Meyer, W., Reussow, J.P., Gillies, D.C., 1975, Availability of Groundwater in Marion County, Indiana, USGS Open File Report 75-312






Weston Solutions, Inc (Weston), March 27, 2011, Technical Memorandum-Analytical and Hydrogeological Evaluation-West Vermont Street Contamination Site-Speedway, Marion County, Indiana.

Attachment A
Allison Submittal from June 16th EPA Meeting







- | | |
|---|---|
|  | ASPHALT/CONCRETE |
|  | FILL/TOPSOIL |
|  | PLASTIC CLAY |
|  | SAND |
|  | TILL |
|  | MONITORING WELL SCREENED INTERVAL |
|  | ELANK DRILLED (NO LOGGED LITHOLOGY) |
|  | DEPTH TO WATER DATA (10/14/10) BY EPA |
|  | DEPTH TO WATER DATA (10/15/10) BY ARCADIS |
|  | DEPTH TO BOREHOLE WATER DATA (DATE INSTALLED) |

S2A/S2B/S3 SATURATED SAND UNIT ID

<0.005 PCE CONCENTRATION ($\mu\text{g/L}$)

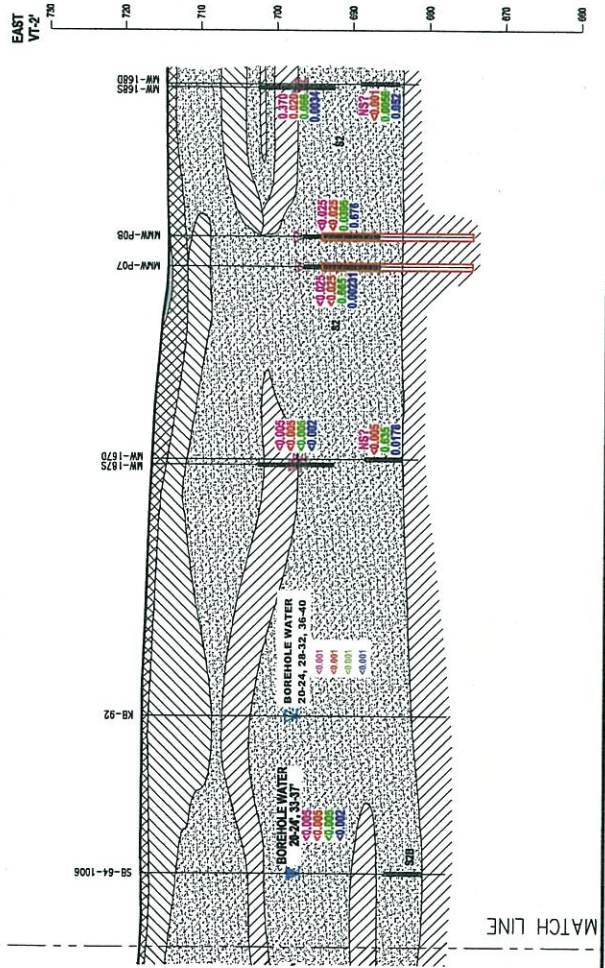
<0.005 TCE CONCENTRATION ($\mu\text{g/L}$)

CIS-1,2-DCE CONCENTRATION (µg/L)

VC CONCENTRATION ($\mu\text{g/L}$)

NOTES:

1. KB-89, KB-90, KB-91 USED
SURFACE GROUND ELEVATION OF
MW-158.
2. KB-92 USED SURFACE GROUND
ELEVATION OF SB-64-1006.



Two scales are shown: a vertical scale and a horizontal scale. Both scales are marked with 0, 16', and 32'. The vertical scale is labeled 'VERTICAL SCALE' and the horizontal scale is labeled 'HORIZONTAL SCALE'. Both scales are marked with 'V.E. 10X'.

**GENERAL MOTORS LLC
ALLISON TRANSMISSION, INC.
SPEEDWAY, INDIANA**

CROSS SECTION VT-2 - VT-2'